SOS Kiosk Version 1.0 Users Manual
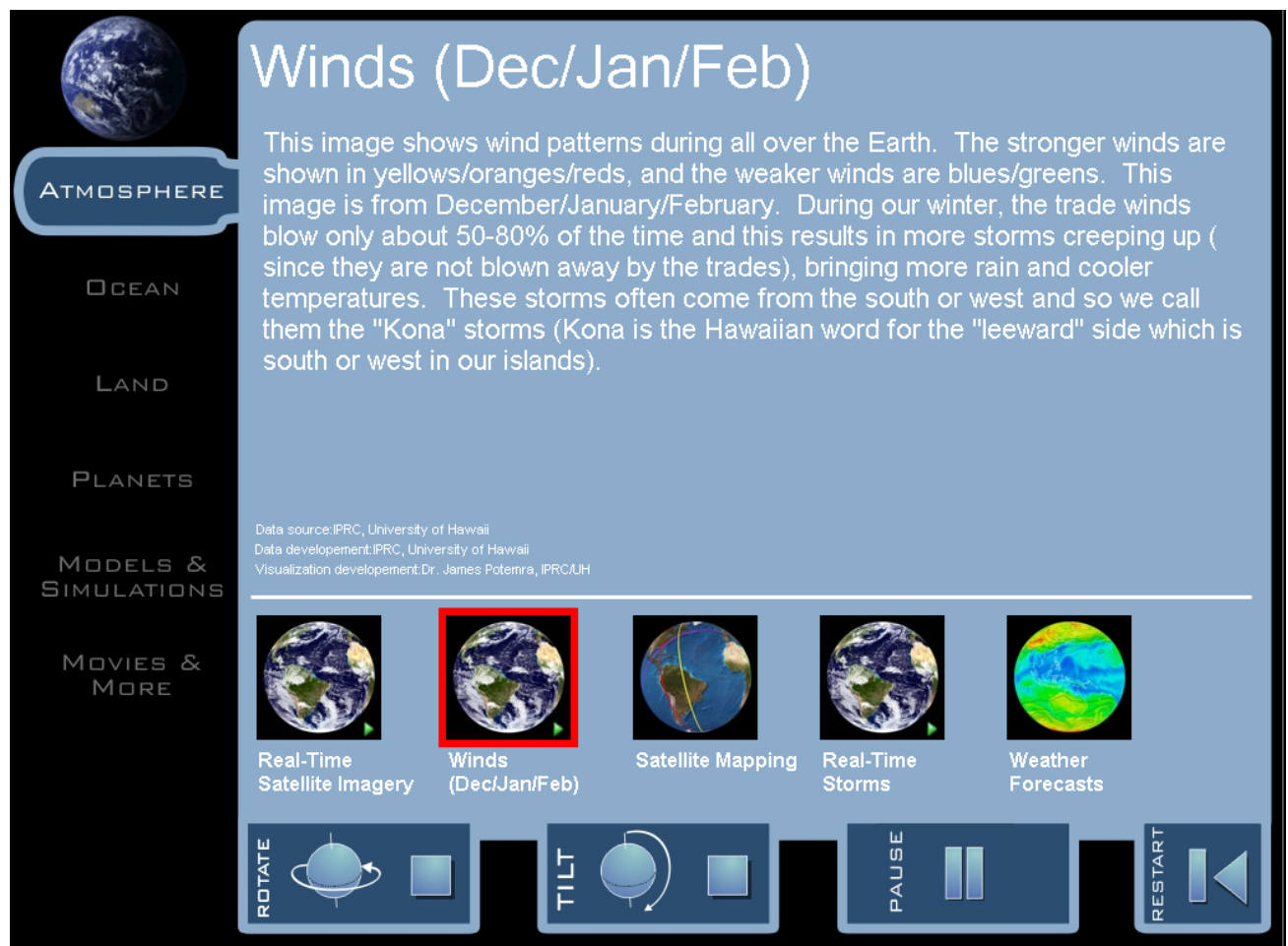
Fall 2012
Bishop Museum

Introduction

Figure 1.

The SOS Kiosk program allows visitors to interact with the NOAA Science on a Sphere (SOS) via a touchscreen. Visitors can choose from available datasets, tilt, rotate, pause and play, and restart movies, animations, and still photos projected on the SOS. The program was developed by the Bishop Museum with support from NOAA and NASA.

The program is intended for PC installation. While it may work under Windows emulation under Mac or Linux, this has not been tested.

At the heart of the program is a Microsoft Access 2003 database (bmsphere.mdb) that organizes the available datasets. The database contains title information, image paths, and additional information.

The SOS Kiosk program uses the database to populate and layout the user interface (UI). Clicks on the UI trigger telnet commands to the Linux computer that runs the SOS.

Installations need to use the categories structure as seen in Figure 1 above (Atmosphere, Ocean, Land, Planets, Models and Simulations, and Movies and More). To modify the layout and change categories requires recoding the program and creation of new graphics. Source code is available for download. Reprogramming can be done using Microsoft Visual Basic Express Edition (free download from Microsoft - see Resources section for more information).

Requirements

Windows based PC

Network connectivity (also need to know IP address of SOS Linux machine)

Touchscreen with 1024 x 768 resolution

Microsoft Access 2003 needed to populate and maintain database

NOTE: Harddrive space and RAM requirements are very modest (installed program, associated database, and thumbnails is <60MB).

Installation

Click on the Setup.exe

Program will install to C:\Program Files\SOS Kiosk.

If installed to another directory, it will be necessary to open the file "BMSOSNET.exe.config" to ensure that image paths are correct.

Default settings are:
<value>c:\program files\SOS Kiosk\thumbs</value>

If installed to another directory, change the value to the appropriate path and save.

After installing the program, overwrite the bmsphere.mdb database with this one (ADD A LINK HERE). The newer database hides extraneous field that are not used in this version and has 5 slots per category open for customization.

Set Up

On starting the program (see figure below), users must enter the IP address of the SOS machine. Default is 10.1.1.43 (future versions will allow save of IP address).

The "Enable Missions" radio button is reserved for future releases and is non-functional in this version.
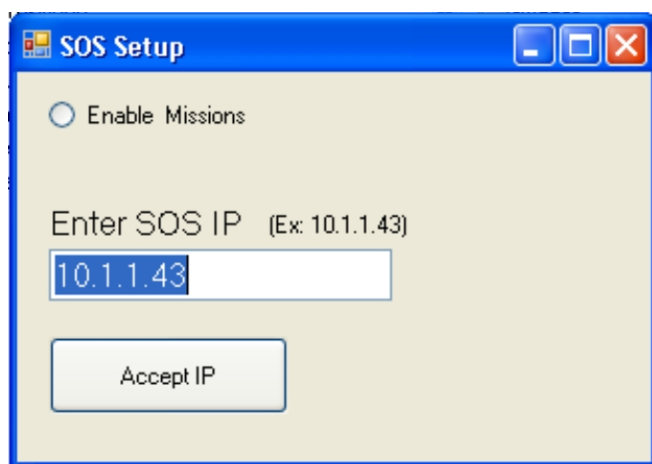

Fig. 2

Screen size for **visitor use** is 1028 x 768.

If the screen is set at a higher resolution, a number of bug checking tools become visible, including a exit button ("Initiate Self Destruct" ;) and a toggle for SOS connectivity ("Can Connect"/"No Connect"). See
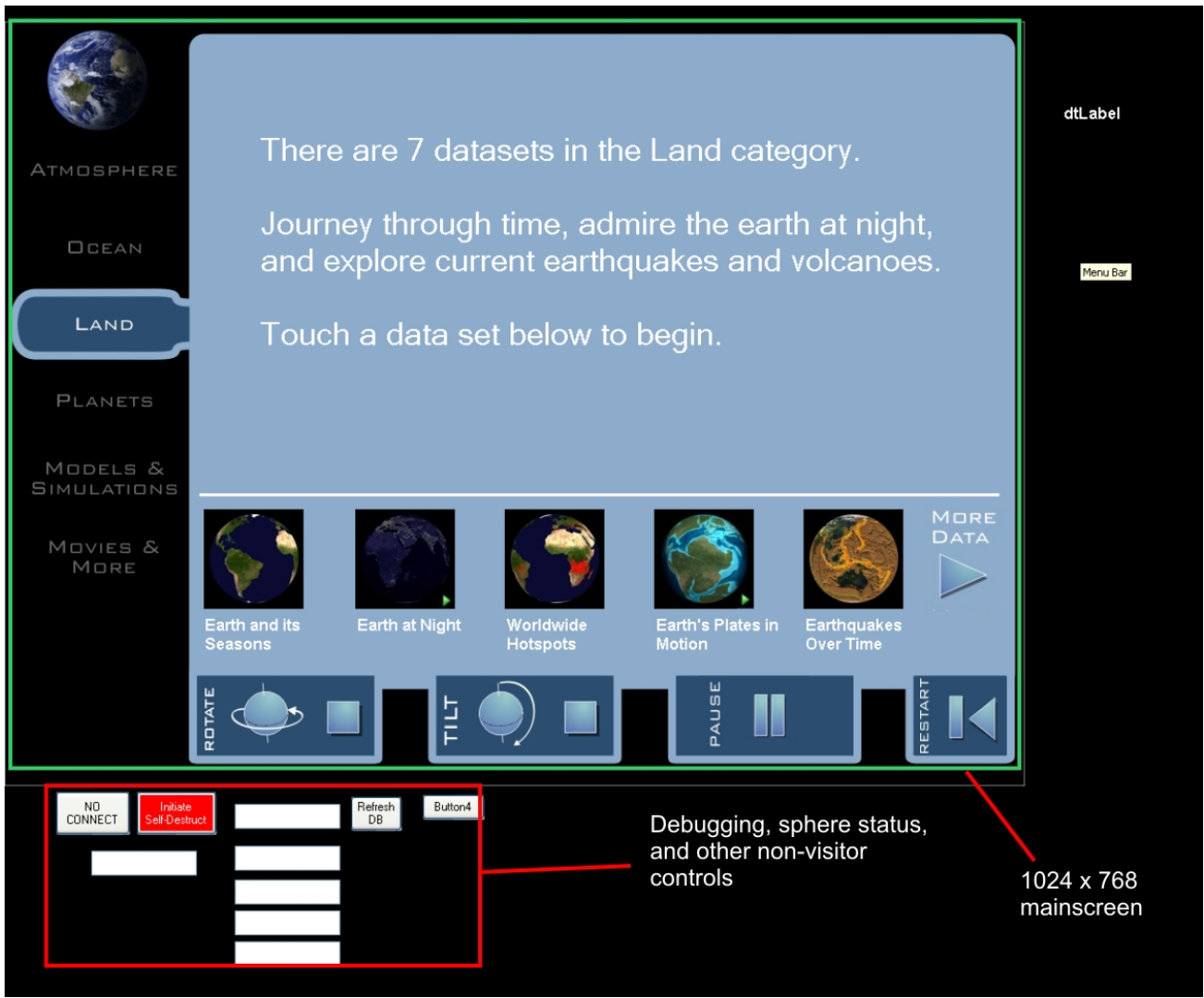
below.

Fig 3. Expanded interface visible when running higher resolution than 1024 x 768.

These tools are useful to see what commands are being sent to and from the SOS machine, the state of the dataset's tilt and rotation, and other variables.

SOS playlist

The SOS Kiosk program sends commands to the Linux machine running the Sphere.

Example:
```
# 1
name  = Real Time Weather
datadir = /shared/sos/rt/noaa/sat/linear/medium
label = /shared/sos/rt/noaa/sat/linear/rawlabel.txt
fps = 15
```

It's a good idea to add a number in front of the data set so you can match it with the SOS_Number in the database (see Database section below).

Thumbnails

Thumbnails of each dataset need to be provided and their names linked with the dataset in the bmsphere.mdb database (see below). Thumbnails should be 100 x 100 jpgs. They should be located in c:\program files\SOS Kiosk\thumbs. Installing SOS Kiosk will create a thumbs directory with a number of jpgs. If a thumbnail is not listed in the database for a dataset, or if the file is not found in the thumbs path, the file "bluemarble.jpg" will be substituted.

Fig 4. Example of a thumbnail, mars.jpg.

Database

Datasets in the SOS playlist are organized in the database bmsphere.mdb.

There are 4 tables:
Categories: A list of dataset categories. The description field will be shown when users click to another category.

Click_Data: A user generated table that records the duration and title of each dataset viewed. This can be used to evaluate visitor preferences.

CountDataType: A table that helps to set up the thumbnails in the user interface. After the sphere_data table is populated or updated, the CountDType query should be run to update the CountDataType table (future versions will automate this) or the thumbnails will not render correctly.

sphere_data: Information to connect to the Linux SOS machine and provide context for user. Some fields are obsolete while others are reserved for features in future releases.

Field definitions:

SOS_Number: REQUIRED. A unique number that matches a datasets description to that dataset's number in the SOS playlist on the Linux machine. Note that thumbnails appear listed by their SOS_number value, from lowest to highest. Also note that SOS_numbers need not be consecutive within a category (though they must be unique). For example, the Atmosphere category could be comprised of datasets with the SOS numbers 1, 2, 5, 29, 33, 156 etc...and would show in that order as thumbnails.

Title: REQUIRED. A short title that tells users what the datasets shows. Titles should be unique to make visitor use statistics easier to understand. **Limited to about 36 characters with spaces**. The *Title* field also labels the dataset thumbnail.

Duration: Duration in seconds for movies. Default is 0.

Description: REQUIRED. Description of the dataset. **Limited to about 750 characters with spaces**.

Image: Name of thumbnail image to be associated with the dataset. For thumbnail specifications, see above. Extension/filetype need not be included in this field. If left blank or incorrect, thumbnail will default to "bluemarble.jpg"

Source: Credit line for dataset's originator.

Data_dev: Credit line for dataset's data developers.

Vis_dev*:* Credit line for dataset's visualization developers.

Note: fields below are not used in the current version are hidden in the prepared database (see installation notes).

Title_second_line: Not used in this version.

Subtitle: Not used in this version.

Audio: Not used in this version.

Play_count: Not used in this version.

Legend*:* Not used in this version.

Animated*:* Not used in this version.

Local*:* Not used in this version.

Local_2*:* Not used in this version.

Local_3*:* Not used in this version.

Running SOS Kiosk

Categories are listed on the left side of the UI. Visitors can narrow down the data sets they are interested in by choosing from one of the six categories.

When a category is chosen, up to five thumbnails are displayed across the bottom of the UI. If there are more than 5 datasets, visitors can see the rest of the datasets within the category by pressing the "More Data" icon.

NOTE: "More Data" only appears if there are more than 5 datasets/thumbnails. Currently the database should not have more than 10 datasets for each category.

Dataset thumbnails are listed by their SOS_Number (see database section above). The SOS_Number matches the dataset's position in the playlist currently loaded on the SOS computer.

NOTE: Ensure that the correct playlist is loaded on the Linux machine that runs the Sphere (ie. the playlist that matches the data in bmsphere.mdb). SOS Kiosk sends commands that tell the Linux machine, for example, "Play the fourth dataset in the current playlist" or "Tilt the dataset by 10°". This version of SOS Kiosk **does not** remotely/automatically load the correct playlist or detect which playlist is running.

Rotate spins the dataset +10° around the Z axis. The square in the Rotate area resets the dataset to its original orientation. Visitors can make complete rotations through 360°.

Tilt turns the dataset +10° off the Z axis. Visitors can make complete rotations through 360°. The square in the Tilt area resets the dataset to its original tilt.

Play/Pause is a toggle. This tool is most useful when watching animated datasets, but will also stop and start the rotation of a dataset.

Restart opens the dataset again from the beginning. Animated datasets and movies will start over while still photos will simply reset to their original tilt and rotation.

Locking the Kiosk

The Kiosk can be locked out by staff so visitor interaction is blocked. This is useful if staff are leading a lecture using the Sphere and don't want the dataset to be rotated, tilted, and/or changed.

To lock the Kiosk, quickly press in the upper left (at '1' on the spinning globe) and then in the lower left (at '2' in the black space) - see figure below.
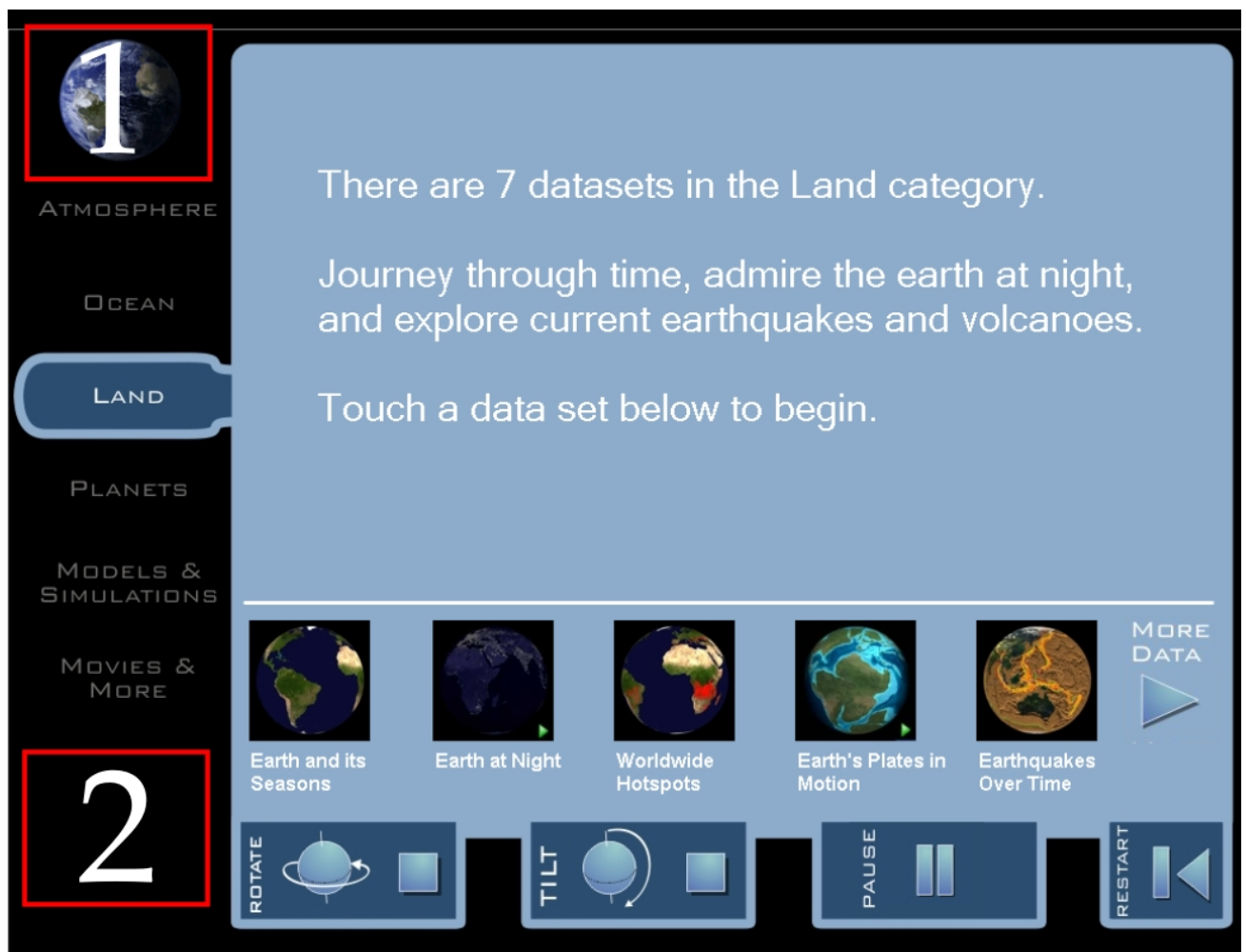

Fig 5. Lock button locations.

The two clicks need to be within about half a second otherwise the lock will not trigger. Using two hands is probably easier, but you can click both area with one hand in the time window if you are quick.

A successful lock will bring up a confirmation - see below. During lock no controls will function.
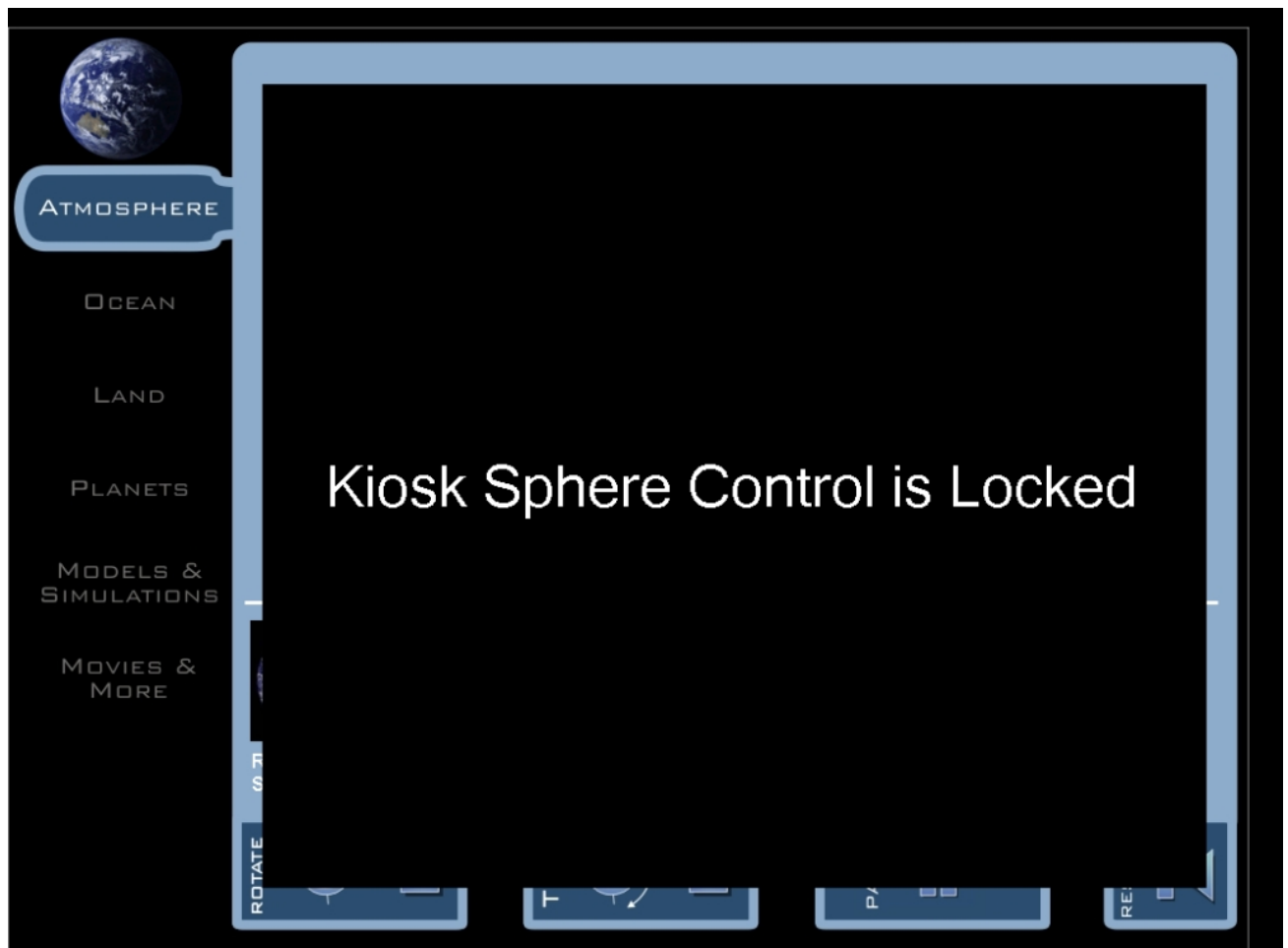

Fig 6. Kiosk lock confirmation screen.

To unlock the kiosk, press the same areas in the same order within the same interval.

Known Bugs

Too many datasets of a single type: In the current version if the database contains more than 10 datasets within a given category, an extra thumbnails will appear off the right side of the screen and will not be functional. WORKAROUND: Limit datasets to 10 or fewer within each category.

Lock kiosk / change playlist crash: If the kiosk crashes (usually happens when you close out of the SOS GUI and reopen), press "Quit" and reopen the kiosk.

32/64bit Versions: The original program was created for 32bit operating systems. Windows 7 users have occasionally needed a recompiled version that explicitly tells the OS how the program was compiled. For access to the 32bit explicit version please see the resources section below.

Future Features

There are a number of features that are under consideration for future releases

Automatic email of visitor usage statistics
Save IP address
Automated Count of Data type table update
Missions form
Unlimited datasets within categories
Additional links to related datasets (especially moons linked from planet main screen)

Please forward ideas to webmaster@bishopmuseum.org.

Resources

SOS Kiosk was developed in Microsoft Visual Basic.NET. The source code is open and is available to download and modify from Bishop Museum.

Please contact webmaster@bishopmuseum.org for more information on downloading source code.

Visual basic 2008 Express edition is available from Microsoft for free download and can be used to modify the source code to customize the SOS Kiosk program to a given installation.

http://www.microsoft.com/express/Downloads/#2008-Visual-Basic

There are a number of interesting controls for the linux SOS program that have not been explored in SOS Kiosk. A list of available commands can be found here:

http://sos.noaa.gov/docs/automation.html

Original source code and the compiled program are available for anonymous ftp download at:

ftp://63.160.54.21
user: exhibit
pass: exhibit01

Folder > Science on a Sphere>BMSOS

Users running Windows 7 may need to download an explicitly compiled 32-bit version. That can be found in the 32 bit directory on the ftp server:

Folder > Science on a Sphere>32Bit